

*Features Expected In ANDROID 11 *

Now one thing is obvious Android is going to be a major and most likely the only player in mobile operating systems. What makes it so unique is its openness and constant evolution. Evolution in connecting to more devices or simplifying the user experiences and providing more API to the developer who can build intuitive user experiences.



As of writing, the Android stable version is 10, the android team, however, has already started with beta testing for Android 11. Let's take a high-level overview of new features and change it is planning to bring



1. New Features and APIs

Welcome to the world of 5G, 5G soon going to be the reality of our world in order to cope up with it. New icons are needed on the phone to showcase the 5G signals.

5G visual indicators are introduced in the new API level and the best part is the developer can consume those indicators in their apps.

Like 5G, let's welcome ourselves with the world of phones having waterfall displays. Well, the obvious question here is what is the waterfall display, the honest answer is it's the same as curved display however the side display is so curved so that the side bezel

is not displayed. In short, practically there is no bezel on your phone. For more information, you can check the phone Huawei mate pro 30.

Android 11 provides improvements in screen APIs for developers to cover the waterfall display. Developers just need to set `layoutInDisplayCutoutMode` to `LAYOUT_IN_DISPLAY_CUTOUT_MODE_ALWAYS` which allows expansion of apps in the waterfall display.

Hinge Angles and Foldables Support, Android 11 comes with an implementation for new sensor `TYPE_HINGE_ANGLE` which developers can consume for minute animations based on the angle of the screen.

In Android 10 we got an experimental chat bubble feature (which can be enabled from developer option), now in 11 we have the number of improvements to bubble feature, users can enable/disable them as per app.

Data sharing and content capture service, starting with android 11 a new service will roll on which can collect the data nearby you and show the relevant information, for e.g. showing travel information when the user is at the airport or station.

2. Behavioral and Privacy changes

Privacy changes, Android 11 has introduced a number of privacy changes which might impact existing apps. User's privacy is enhanced by introducing some new restrictions on the permissions. Few changes are listed below

Scoped storage enforcement, apps that are targeting android 11 has to specifically request to store anything on external storage

One-time permissions, users can grant one time or temporary permission to location, microphone, and camera to apps.

Backgroundlocationaccess, there are changes in the way of accessing a location in the background. This is going to be a breaking change for all the apps that use background location, for e.g. see image below.

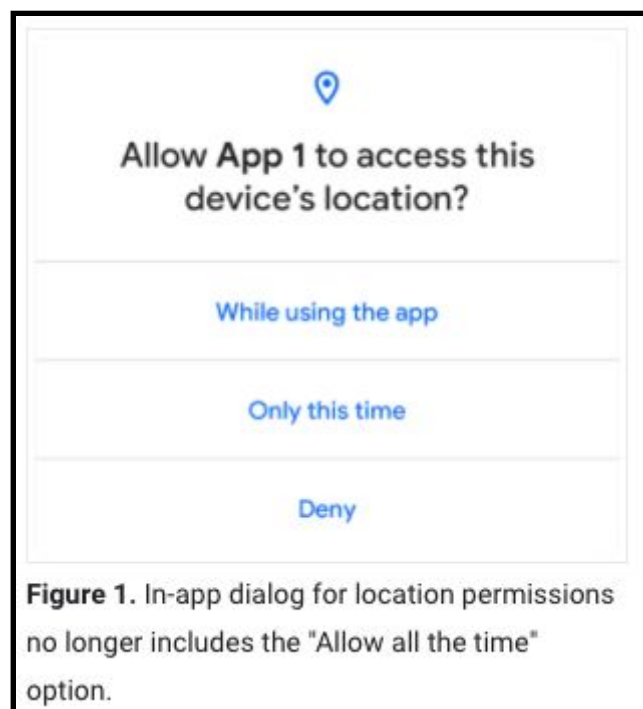


Figure 1. In-app dialog for location permissions no longer includes the "Allow all the time" option.

There is a provision to access location in the background however developers need to create a separate screen for it and explain to the user why it is required.

Android 11 introduced an API that provides concurrent use of the camera.

- `getConcurrentCameraIds()` returns a Set of combinations of camera IDs that can stream concurrently with guaranteed stream combinations when configured by the same application process.
- `isConcurrentSessionConfigurationSupported()` queries whether camera devices can concurrently support the corresponding session configurations.

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